REMARKS

Claims 5-8 are pending in this application.

In this Office Action, the Examiner rejected claims 5 and 7 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,417,428 (Thomashow et al.). According to the Examiner, Thomashow et al. teaches isolated DNA encoding the CBF2 transcription factor of SEQ ID NO: 13 in SEQ ID NO: 12, which is identical to Applicants' SEQ ID NO: 8, and has a priority date for this disclosure of February 3, 1998, which is prior to the claimed priority date of October 14, 1998. The Examiner also asserted that Thomashow discloses a transgenic plant transformed with an isolated DNA encoding SEQ ID NO:13 operably linked to a stress responsive promoter.

The Examiner also rejected claims 6 and 8 under 35 U.S.C. § 103(a) as being obvious over Thomashow. According to the Examiner, Thomashow discloses the coding sequence of CBF2 (SEQ ID NO:12 of Thomashow), such that, even if this sequence is not completely the same as the sequence of DREB1C gene (SEQ ID NO:7 of the present invention), a transgenic plant according to claims 6 and 8 is obvious based upon Thomashow, because it is unclear if there is any showing of unexpected results by transforming a plant with DNA comprising Applicants' SEQ ID NO: 7 nucleotide sequence as opposed to Thomashow's SEQ ID NO: 12.

Applicants traverse the Examiner's rejections. Applicants disagree that that Applicants' amino acid sequence of SEQ ID NO: 8 is identical to the amino acid sequence of CBF2 of SEQ ID NO:13 of Thomashow, and that Thomashow discloses a transgenic plant transformed with an isolated DNA encoding SEQ ID NO:13 operably linked to a stress responsive promoter. In fact, Thomashow describes a transgenic plant with CBF3 gene, but does not disclose a transgenic plant transformed with CBF2 gene (SEQ ID NO:12).

Moreover, Thomashow describes that CBF1 binds to the DRE region to work as a transcription factor and that the rd29A promoter is induced by low temperature stress. However, Applicants point out that Thomashow does not describe the idea of introducing CBF genes into the plant together with a stress responsive promoter comprising a DRE region. As described in Example 5 of the present application, a transgenic plant using CaMV35S promoter showed only

a 16.7% survival rate, while a transgenic plant using rd29A promoter showed a 79.9% survival rate (See Table 3). Thomashow does not describe such a significant effect by introduction of promoters comprising DRE region together with a DREB gene (See Table 1-3, Fig. 8 and Fig. 10, Certificate of Experimental Results 1-3).

The specification of the present application describes that the plants transformed with the DREB gene operably linked to the stress-responsive promoter (rd29A etc.) exhibited higher tolerance against freezing stress, dehydration stress and salt stress than those transformed with the DREB gene operably linked to a conventional promoter, such as the 35S promoter. Further, the conventional promoters may cause remarkable inhibition of the growth of the plants, whereas the stress-responsive promoter exhibited no inhibition of the growth of the plants (see page 38, lines 19-24; and page 16, line 27; page 17, line 7 etc.).

Even if Thomashow describes the amino acid sequence of DREB1C and its coding sequence, please note that the sequence shown in SEQ ID NO:7 of the present invention is not the same as the coding sequence shown in SEQ ID NO:12 of Thomashow. Thomashow describes neither the stress-responsive promoter nor the effect of the combination of DREB1C and the stress-responsive promoter. In other words, Thomashow neither teaches nor suggests a transgenic plant transformed with the vector where the DREB1C gene is operably linked downstream of a stress-responsive promoter. As such, the transgenic plant according to claims 5 and 7 is not anticipated by Thomashow, and the transgenic plant according to claims 6 and 8 is not obvious in view of Thomashow.

In order to support the above argument, Applicants herewith submit the Declaration of Kazuko Shinozaki Under 37 C.F.R. § 1.132 with additional data (Certificate of Experimental Results 1 and 2) showing the stress tolerance of a transgenic plant transformed with the vector where the DREB1C gene is operably linked downstream of a stress-responsive promoter. This data is an English translation of the certificate of experimental results submitted in response to the official action received for the corresponding Japanese patent application, which has now been patented as JP 3183458. As set forth in the declaration, Experimental Results 1 show that DREB1C protein has the function of controlling the transcription of genes downstream of the

stress responsive element, and Experimental Results 2 show that the DREB1A and DREB1C proteins control the transcription of genes located downstream of a salt-stress responsive element, and that plants become salt-stress tolerant through introduction of the DREB1A gene or the DREB1C gene. The declaration and the attached exhibits show the stress tolerance of a transgenic plant transformed with the claimed vector, where the DREB1C gene is operably linked downstream of a stress-responsive promoter, as claimed.

In view of the above arguments and the attached data, Applicants request that the rejections under 35 U.S.C. §§ 102(e) and 103(a) based upon Thomashow be withdrawn.

The Examiner further rejected claims 5-8 under 35 U.S.C. § 103(a) as being obvious over Q. Liu et al., "Two Transcription Factors, DREB1 and DREB2, with an EREBP/AP2 DNA Binding Domain Separate Two Cellular Signal Transduction Pathways in Drought-and Low-Temperature-Responsive Gene Expression, Respectively, in Arabidopsis," The Plant Cell, Vol. 10, pp. 1391-1406, August 1998 in view of ZK Shinwari et al., "An Arabidopsis gene family encoding DRE/CRT binding proteins involved in Low-temperature- responsive gene expression," Biochemical and Biophysical Research Communication, Vol. 250, pp. 161-170, September 1998. According to the Examiner, it would have been obvious to modify the teachings of Liu et al. to transform a plant with a DNA encoding a DREB transcription factor using the DNA taught in Shinwari et al. Applicants traverse this rejection.

The Examiner advised Applicants that they may not use the foreign priority date to overcome this prior art rejection unless a certified translation of the Japanese language priority document is submitted. Applicants point out to the Examiner that both the Liu et al. article (published August 1998) and the Shinwari et al. article (published September 1998) are prior art to the present application under 35 U.S.C. § 102(a), as having been described in a printed publication in this or a foreign country before the invention thereof by Applicants, even without considering the October 14, 1998 filing date of priority Japanese Application No. 292348/1998. In fact, this application is a divisional application of and claims priority under 35 U.S.C. § 120 to U.S. Patent Application No. 09/301,217, which was filed on April 28, 1999, less than one year after the publication dates of both the Liu et al. and Shinwari et al. articles. In addition, under

Manual of Patent Examining Procedure § 715.01(c), unless it is a statutory bar, a rejection based on a publication may be overcome by a showing that the publication was published either by the applicant himself or on his behalf. In this case, Applicants advise the Examiner that the two Applicants hereof, Kazuko Shinozaki and Mie Kasuga, are co-authors of both the Liu et al. and Shinwari et al. articles and that those articles describe Applicants' own invention. Accordingly, Applicants herewith submit a Declaration of Kazuko Shinozaki and Mie Kasuga Under 37 C.F.R. § 1.132 establishing that both of those two references describe Applicants' own invention. In view thereof, Applicants request that the prior art rejection under 35 U.S.C. § 103(a) as being obvious over Liu et al. in view of Shinwari et al. be withdrawn.

The Examiner further rejected claims 5-8 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 7,045,355 (Kazuko et al.). According to the Examiner, the conflicting claims are not patentably distinct from each other because the claimed transformed host cell and vector comprising SEQ ID NO: 7 renders obvious the transgenic plant of the current invention. In response to this rejection, Applicants herewith submit a Terminal Disclaimer disclaiming the term of the present application that extends past the term of commonly-owned U.S. Patent No. 7,045,355.

Conclusion

Reconsideration of the present application, as amended, is requested. If, upon review, the Examiner determines that the application is not in condition for allowance, Applicants respectfully request the Examiner to contact the undersigned for a telephone interview before an Office Action is issued in the application. A favorable action on the merits is earnestly solicited.

Respectfully Submitted,
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